

Abstract

An all-optical time division multiplexing system, comprising:
first divider having first input and a first plurality of outputs for receiving input signals at the first input and directing the input signals to each of the outputs of the first plurality of outputs, the input signals arranged within periodic time slots; second divider having second input and a second plurality of outputs for receiving clock signals at the second input and directing the clock signals to each of the outputs of the second plurality of outputs, and a third plurality of AND gates each having third and fourth inputs and fifth output for receiving the input signals at the third input from one of the outputs of the first plurality of outputs and receiving the clock signals at the fourth input from one of the outputs of the second plurality of outputs, and the clock signals and the input signals coincide in the third and fourth inputs of the AND gates of the third plurality of AND gates in a consecutive order to produce at the fifth output images of the input signals such that only one AND gate of the third plurality of AND gates produces at the fifth output one image of one of the input signals at each time slots and in a consecutive cyclic order.